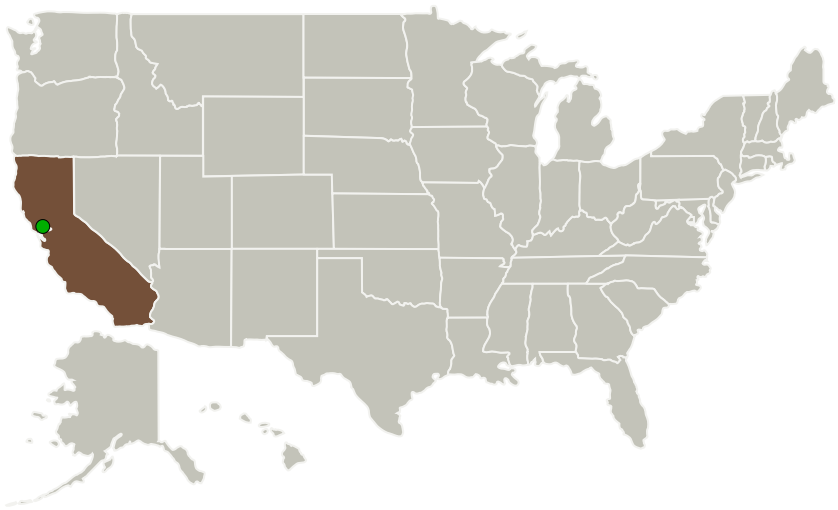
Intelliface - Intelligent Assistant for Interfacing Diagnosis and Planning Systems, Phase II

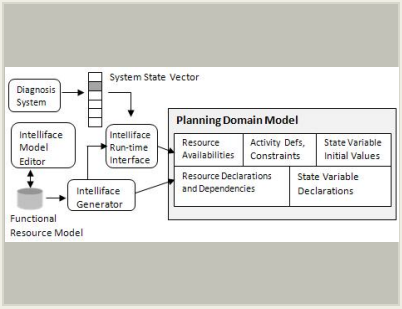
Completed Technology Project (2012 - 2014)

Project Introduction

To integrate automated diagnosis and automated planning functions, one must translate diagnosed system faults to corresponding changes in resource availabilities. Implementing reliable translation is challenging, time-consuming, and error prone. We propose to develop Intelliface, an intelligent tool for developing interfaces between diagnosis and planning systems. Intelliface will help ensure that plans are revised appropriately when faults occur in complex space systems. In addition, Intelliface will reduce the effort needed to integrate diagnosis and planning systems. Intelliface will encode and apply a qualitative understanding of generic types of devices and their underlying physics (e.g., electrical storage, distribution, and consumption; fluid flow and storage; signal processing, etc.) in order to identify each activity's direct and indirect resource requirements and their dependencies. Intelliface will use the results of this reasoning to generate resource declarations, updated resource availabilities, and some planning constraints in the planning domain modeling language. In addition, Intelliface will support NASA's top-down systems engineering processes for specifying system functional requirements, performance requirements, and interfaces at each system tier. During Phase 2, we will develop a technology readiness level 6 software prototype that demonstrates the feasibility, utility, and usability of the Intelliface concept within a NASA-relevant environment.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Stottler Henke Associates, Inc.	Lead Organization	Industry	San Mateo, California
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations
California

Project Transitions

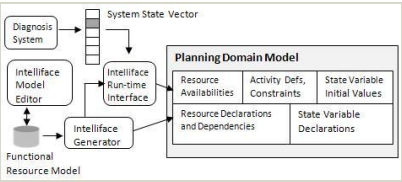
April 2012: Project Start

August 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138677)*

Images



Project Image
Intelliface - Intelligent Assistant for Interfacing Diagnosis and Planning Systems
(https://techport.nasa.gov/image/128129)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Stottler Henke Associates, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

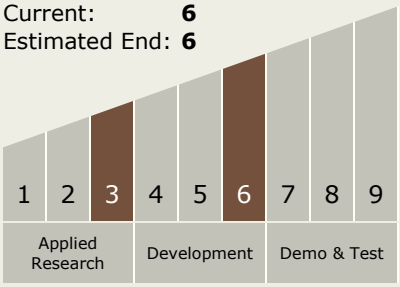
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
James C Ong

Technology Maturity (TRL)

Start: **3**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.4 Human-Robot Interaction
    - TX04.4.3 Remote Interaction

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System